COURSE OUTLINE

PUB717 Environmental Toxicology and Risk Assessment

School: School of Health - Public Health

2027 | Session 1

Online	ONLINE	You can do this course without coming onto campus, unless your program has specified a mandatory onsite requirement.

Please go to unisc.edu.au for up to date information on the teaching sessions and campuses where this course is usually offered.

1. What is this course about?

1.1. Description

This specialised course examines how environmental contaminants cause harm, and the structured methods to estimate and manage that harm in real-world exposure scenarios. It covers toxicokinetics (toxicant absorption, distribution, metabolism, excretion) and toxicodynamics (toxicant effects). You will learn how environmental toxicology complements epidemiology in providing risk-based evidence to inform safe exposure standards and risk communication, and is central to regulatory and policy frameworks used by agencies to protect public and environmental health.

1.2. How will this course be delivered?

ACTIVITY	HOURS	BEGINNING WEEK	FREQUENCY
ONLINE			
Online – 11 hours of structured asynchronous online learning materials and an optional 1 hour online drop in consultation session.	12hrs	Week 1	6 times

1.3. Course Topics

- Introduction to the principles and uses of toxicology and health risk assessment frameworks
- Issue identification and problem formulation
- Hazard identification and sources of data
- Dose response assessment, including toxicodynamics, toxicity-testing, selecting critical endpoints and approaches to deriving points of departure (NOAEL vs BMD)
- Exposure assessment - environmental and bio-monitoring, toxicokinetics and modes of action
- Risk characterisation – Establishing Health-Based Guideline Values (Acceptable Daily Intakes, Maximum Residue Limits, Hazard Quotients)
- Rigour and transparency - acknowledging assumptions and dealing with uncertainty
- Risk evaluation and communication
- Emerging trends in environmental toxicology and risk assessment

2. What level is this course?

700 Level (Specialised)

Demonstrating a specialised body of knowledge and set of skills for professional practice or further learning. Advanced application of knowledge and skills in unfamiliar contexts.

3. What is the unit value of this course?

12 units

4. How does this course contribute to my learning?

COURSE LEARNING OUTCOMES On successful completion of this course, you should be able to...	GRADUATE QUALITIES MAPPING Completing these tasks successfully will contribute to you becoming...	PROFESSIONAL STANDARD MAPPING * Environmental Health Australia
1 Source and critically evaluate toxicological evidence underpinning an environmental health risk assessment.	Knowledgeable Creative and critical thinker Empowered	E, E.1, E.2, L.2, S.2, S.3, S.6, S.10, L.15
2 Apply the risk assessment framework to characterise levels of risk associated with a specific environmental toxicant.	Knowledgeable Creative and critical thinker Empowered	E, E.1, E.2, E.3, R.5, S.6, S.10, L.13
3 Evaluate the significance of a specific toxicant exposure scenario.	Knowledgeable Creative and critical thinker Ethical Sustainability-focussed	E, E.1, M.1, E.2, R.5, S.6, S.10, L.13, L.15

* Competencies by Professional Body

CODE	COMPETENCY
ENVIRONMENTAL HEALTH AUSTRALIA	
E	Environmental health risk assessment and management
E.1	Understanding of the core principles, frameworks for and procedures involved in risk assessment for environmental health contexts.
M.1	Introduction to decision support tools (e.g. risk analysis, cost-benefit analysis, etc.).
E.2	Critical evaluation of evidence underpinning environmental health risk assessment.
L.2	Introduction to the law making process and factors that influence policy and legislation.
S.2	Basic principles of biology.
S.3	Introduction to human anatomy and physiology as a basis for understanding disease causation and exposure pathways.
E.3	Introduction to risk management principles and evaluation of risk management options.
R.5	Problem solving using systems thinking and critical judgement.
S.6	Basic principles of chemistry.
S.10	Introduction to toxicology as a basis for environmental health risk assessment.
L.13	Introduction to governance principles and strategies, ethics and decision making.
L.15	Introduction to key government strategies and intergovernmental agreements in the context of environmental health.

5. Am I eligible to enrol in this course?

Refer to the UniSC Glossary of terms for definitions of “pre-requisites, co-requisites and anti-requisites”.

5.1. Pre-requisites

Enrolled in any Postgraduate Program

5.2. Co-requisites

Not applicable

5.3. Anti-requisites

Not applicable

5.4. Specific assumed prior knowledge and skills (where applicable)

Not applicable

5.5. Microcredential Information

Not applicable

6. How am I going to be assessed?

6.1. Grading Scale

Standard Grading (GRD)

High Distinction (HD), Distinction (DN), Credit (CR), Pass (PS), Fail (FL).

6.2. Details of early feedback on progress

Early formative feedback will be provided for both tasks. Further details will be provided on Canvas.

6.3. Assessment tasks

DELIVERY MODE	TASK NO.	ASSESSMENT PRODUCT	INDIVIDUAL OR GROUP	WEIGHTING %	WHAT IS THE DURATION / LENGTH?	WHEN SHOULD I SUBMIT?	WHERE SHOULD I SUBMIT IT?
All	1	Artefact - Technical and Scientific, and Written Piece	Individual	60%	3000 words	Week 4	Online Submission
All	2	Oral	Individual	40%	20 minutes	Week 6	Online Submission

All - Assessment Task 1: Environmental health risk assessment report

GOAL:	To demonstrate your knowledge and understanding of toxicological principles and skills in conducting and communicating a screening level risk assessment for a specific environmental toxicant.
PRODUCT:	Artefact - Technical and Scientific, and Written Piece
ASSURED LEARNING:	Yes
PROGRAM ASSESSMENT:	Assessment Task
FORMAT:	You will source, synthesise and appraise relevant scientific data and information relevant to each of the 4 steps of risk assessment and communicate the findings in a written scientific report suitable for a professional health regulator audience. You will select a specific environmental toxicant for this task which will need to be approved by the course coordinator. You will then source, summarise and critically appraise scientific evidence relevant to and presented under the following risk assessment steps (Hazard Identification, Dose-response assessment, Exposure assessment and Risk characterisation). The report will conform with specific guidelines provided and tables and figures will be required. Further information will be provided on Canvas. This report should be included in your Professional Environmental Health e-portfolio.
CRITERIA:	

No.		**Learning Outcome assessed**
1	Appraise the nature and quality of the scientific evidence sourced	1
2	Synthesise and critically evaluate evidence relevant to each step of risk assessment.	1
3	Develop accurate content for each step of the risk assessment framework.	2
4	Integrate tables and figures to support the synthesis and summary of key findings.	2
5	Communicate in written form including spelling, grammar, punctuation and adherence to genre.	2

GENERIC SKILLS:	Communication, Organisation, Information literacy

All - Assessment Task 2: Professional oral presentation

GOAL:	To analyse and communicate levels of health risk for a defined real-world environmental exposure scenario.
PRODUCT:	Oral
ASSURED LEARNING:	Yes
PROGRAM ASSESSMENT:	Assessment Task
FORMAT:	You will produce a recorded 20-minute, oral presentation that builds on the generic risk assessment of your chosen toxicant from Task 1. You will nominate a specific community likely to be exposed to your toxicant and cover the following three elements. 1. Synthesise evidence and use judgement to characterise the current situation (risk levels) by: 1.1 Estimating the likely levels of exposure to the toxicant by members of your defined community, and 1.2 Estimating the prevalence of health conditions shown to be associated with the toxicant within your designated community. 2. Distinguish the key roles and responsibilities of a range of stakeholder groups/agencies for managing the health risks faced by members of your community. 3. Outline further research needs that would better inform risk reduction strategies. Further information will be provided on Canvas.
CRITERIA:	**No.** / **Learning Outcome assessed** 1 — Source and integrate relevant and accurate evidence for your community in relation to estimated levels of exposure to the toxicant and health outcomes. — 3 2 — Develop scenario- specific risk insights through the synthesis of toxicological evidence, exposure and health data, and contextual factors. — 3 3 — Create and deliver a professional oral presentation that is well designed and communicated effectively. — 3
GENERIC SKILLS:	Communication, Problem solving, Applying technologies, Information literacy

6.4. Assessment to competency mapping

PROGRAMME DELIVERY MODE	ASSESSMENT TYPE	TITLE	COMPETENCY	TEACHING METHODS
EHA ENVIRONMENTAL HEALTH COURSE ACCREDITATION POLICY				
All delivery modes	Artefact - Technical and Scientific, and Written Piece	Environmental health risk assessment report	E.1	Assessed
			E.2	Assessed
			E.3	Assessed
			S.6	Assessed
			S.10	Assessed
	Oral	Professional oral presentation	E.1	Assessed
			E.2	Assessed
			E.3	Assessed
			L.13	Assessed
			L.15	Assessed
			R.5	Assessed
			S.6	Assessed
			S.10	Assessed

7. Directed study hours

A 12-unit course will have total of 150 learning hours which will include directed study hours (including online if required), self-directed learning and completion of assessable tasks. Student workload is calculated at 12.5 learning hours per one unit.

8. What resources do I need to undertake this course?

Please note: Course information, including specific information of recommended readings, learning activities, resources, weekly readings, etc. are available on the course Canvas site– Please log in as soon as possible.

8.1. Prescribed text(s) or course reader

> There are no required/recommended resources for this course.

8.2. Specific requirements

Students will be required to have a reliable Internet connection, a computer, a microphone headset and a webcam for Technology Enabled Learning and Teaching Activities.

9. How are risks managed in this course?

Health and safety risks for this course have been assessed as low. It is your responsibility to review course material, search online, discuss with lecturers and peers and understand the health and safety risks associated with your specific course of study and to familiarise yourself with the University's general health and safety principles by reviewing the online induction training for students, and following the instructions of the University staff.

10. What administrative information is relevant to this course?

10.1. Assessment: Academic Integrity

Academic integrity is the ethical standard of university participation. It ensures that students graduate as a result of proving they are competent in their discipline. This is integral in maintaining the value of academic qualifications. Each industry has expectations and standards of the skills and knowledge within that discipline and these are reflected in assessment.

Academic integrity means that you do not engage in any activity that is considered to be academic fraud; including plagiarism, collusion or outsourcing any part of any assessment item to any other person. You are expected to be honest and ethical by completing all work yourself and indicating in your work which ideas and information were developed by you and which were taken from others. You cannot provide your assessment work to others. You are also expected to provide evidence of wide and critical reading, usually by using appropriate academic references.

In order to minimise incidents of academic fraud, this course may require that some of its assessment tasks, when submitted to Canvas, are electronically checked through Turnitin. This software allows for text comparisons to be made between your submitted assessment item and all other work to which Turnitin has access.

10.2. Assessment: Additional Requirements

Eligibility for Supplementary Assessment

Your eligibility for supplementary assessment in a course is dependent of the following conditions applying:
(a) The final mark is in the percentage range 47% to 49.4%; and
(b) The course is graded using the Standard Grading scale

10.3. Assessment: Submission penalties

Late submissions may be penalised up to and including the following maximum percentage of the assessment task's identified value, with weekdays and weekends included in the calculation of days late:
(a) One day: deduct 5%;
(b) Two days: deduct 10%;
(c) Three days: deduct 20%;
(d) Four days: deduct 40%;
(e) Five days: deduct 60%;
(f) Six days: deduct 80%;
(g) Seven days: A result of zero is awarded for the assessment task.

The following penalties will apply for a late submission for an online examination:
Less than 15 minutes: No penalty
From 15 minutes to 30 minutes: 20% penalty
More than 30 minutes: 100% penalty

10.4. Links to relevant University policy and procedures

For more information on Academic Learning & Teaching categories including:

- Assessment: Courses and Coursework Programs
- Review of Assessment and Final Grades
- Supplementary Assessment
- Central Examinations
- Deferred Examinations
- Student Conduct
- Students with a Disability

For more information, visit https://www.usc.edu.au/explore/policies-and-procedures#academic-learning-and-teaching

10.5. Student Charter

UniSC is committed to excellence in teaching, research and engagement in an environment that is inclusive, inspiring, safe and respectful. The Student Charter sets out what students can expect from the University, and what in turn is expected of students, to achieve these outcomes.

10.6. General Enquiries

For course-specific questions, contact your teaching staff or Course Coordinator.

For other enquiries or to access support, please contact Student Central:

- UniSC Student Central
- UniSC Adelaide Student Central